



# REACHING FOR SUCCESS

Safely pushing ahead  
with global expansion



# WELCOME

A warm welcome to the fifth issue of *Highlights*. Here, we celebrate our recent successes and look forward to the multitude of challenges that lie ahead.

These are busy and exciting times at Al Jaber Heavy Lift (AJHL). Our highly skilled workforce has safely completed some astonishing heavy duty projects in the last year, and achieved impressive safety records too.

Team spirits are running high as we forge ahead with our commitment to provide clients with the most comprehensive heavy lift and transportation services, both for onshore and offshore industries.

A successful company is built upon its employees. Thanks to our dedicated technical and engineering crews, who are supported by a skilled management team – not to mention a fleet of world-class equipment – we are capable of taking on the most exciting and complex heavy lift duties anywhere in the world.

What's more, our clients recognise our success – to the extent that one client recently held a ceremony to thank all the sub contractors for helping them to achieve 100 million incident-free man hours on their project.

As we look forward to building upon our international portfolio in the months ahead, we extend a warm thank you to the Al Jaber family for their ongoing support and guidance in the development of AJHL.

We hope you enjoy reading this latest edition of *Highlights*. 🇸🇦

Alexander Mullins  
Executive Director, Al Jaber Heavy Lift Group



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# RECORD-BREAKING LOAD OUTS IN THE UAE

*AJHL delivers on a series of impressive load outs requiring precise preparation, engineering and execution*

**A**JHL's Abu Dhabi team successfully finished a series of landmark, heavy load out projects for one of the UAE's leading specialists in offshore drilling rigs and platform fabrication and refurbishment. Over the course of operations, the crew completed a record-breaking six load outs for an offshore rig onto a semi-submersible barge at the client's fabrication yard in Hamriyah, Sharjah. Each load out weighed between 6,000Te and 7,000Te.

The client understood from the outset that transporting and loading out a rig of this size would involve numerous complexities, and so it invited AJHL to study and submit a proposal to carry out the operation safely in the pre-engineering stage. Based on this, AJHL was awarded the job.

The rig hull had to be transported from the fabrication area to the quay side for the load out onto the semi-submersible barge. This was highly challenging from safety, technical and commercial perspectives. The rig weighed 6,300Te and measured 74.09m long, 62.78m

wide and 7.92m high. But, with the trailers and auxiliary steel works, the total load reached a colossal 7,284Te.

One of AJHL's biggest challenges was mobilising the vast number of axles needed for the job from different branches and sites around the world, with around 98 axles shipped from Singapore and Qatar hubs in addition to the ones available locally.

A key period of the job was the extrication and mobilisation of 104 axles from Ruwais in Abu Dhabi to the Hamriyah project site, which AJHL achieved in an impressive two days in time for the load out.

*“Assembling all 232 axles in different combinations with eight power packs was accomplished in just one day”*



AJHL's engineers were engaged with the client's engineers and technical personnel from the beginning to finalise the optimal configuration of the trailer and lay out for ease of placing of the trailers.

## ENGINEERED TO PERFECTION

A total of 232 hydraulic axle lines of SPMTs (self-propelled modular trailers) were deployed for the load out operation. SPMTs were selected for this load out operation thanks to their 360-degree manoeuvrability, 40Te maximum payload capacity per axle line, and the ability to configure them as per on-site spacing needs.

Assembling all 232 axles in different combinations, with eight power packs and their mechanical and electrical couplings, was accomplished in just one day. Data connections were completed so that all power packs and axles were controlled by one remote control unit for faster and precise control.

The most difficult part was manoeuvring and arranging the axles under the rig hull. Trailer paths were marked under the hull as per the stool arrangement on the barge, and trailers were carefully placed ready for the jack up and transportation operation.

## EXPERT HANDLING

Load out operation of the rig was scheduled for 6am to coincide with favourable tide conditions for optimum safety. The distance between the two towing brackets on the stern side of the barge was 27.9m, while the total width of the trailer configuration was 27.5m. This left a clearance of just 20cm from the SPMT tyres to the towing bracket on each side.

Thanks to AJHL's skilled operators and crew, the team proved their expertise in responding proactively to client's requirements – and exceeding expectations. The client was so impressed that they automatically awarded each subsequent load out to AJHL, without inviting other firms to tender.

What's more, the customer was delighted that the deadline of transporting and loading out the rig was met on the exact day it was scheduled. This enabled the client to complete the float off on time, move the rig back to Hamriyah for the completion of the fabrication work and finally deploy the rig for offshore operation.

AJHL ensured a smooth and safe project completion, with no lost time to accident or breakdown. The impeccable execution reinforces AJHL's reputation, and demonstrates why clients across the globe repeatedly engage its services for the most complex operations. 





# HEAVY DUTY DOWN UNDER

*AJHL builds upon its solid reputation in Australia as a leading heavy lift provider*

**A**JHL has completed an environmentally-sensitive job on a liquefied natural gas (LNG) project on Barrow Island, 70km off the coast of Western Australia.

The project involves the construction of an LNG production facility on the island, a Class A nature reserve. It will be one of Australia's single biggest developments, with an estimated resource base of more than 40 trillion cubic feet of gas, and a development life of around 60 years.

The client, a global logistics company, has the contract for freight forwarding, unloading, discharge and transport of materials supply to Barrow Island, as well as the logistics contract for the receiving and distribution of freight from a load-out facility developed for handling material on the project.

AJHL was tasked with translating the concept of a temporary loading wharf into a manageable handling facility, with the use of a barge and crawler crane to retain a flexible wharf receiving facility.

## ENVIRONMENTALLY AWARE

Ensuring AJHL's plant was correctly prepared for work in a Class A nature reserve was an important part of this job.

All crane data, including material safety data sheets, on barge engineering, lifting studies, assembly methods etc, were pre-prepared whilst the plant was cleaned and wrapped for careful shipment to the island.

Skilled supervisors and operators assisted mobilisation before AJHL built the plant, had it tested, licensed and certified on barge for final operation by the client.

Despite the challenging location and conditions of this operation, such as working in a high heat and harsh humid environment – not to mention being in the midst of a cyclone belt and working on a barge – AJHL has maintained a zero LTI and highly commendable 100 per cent zero break down record for this plant to date. 



# POWERING UP IN BANGLADESH

*AJHL is a vital asset in the country's ever-increasing demand for natural gas*

**A**JHL's recent involvement on one of the largest-producing gas fields in Bangladesh proves it has the technical know-how to overcome heavy lifting challenges anywhere in the world.

In July 2012, the client announced major plans to develop its Bangladeshi operations. This included an ambitious gas plant expansion, new development wells and an enhanced liquids recovery unit, designed to increase the total maximum daily production by more than 300 million cubic feet of natural gas and 4,000 barrels of condensate.

AJHL provided the lifting services package for the plant expansion, which called for five mobile cranes and one 275Te crawler crane to be deployed for eight months from July 2013.

All equipment was shipped from Singapore to the Bangladeshi port of Chittagong, and then road freighted to the project site approximately 500km away. Logistical challenges, coupled with the project's remoteness, meant a concerted effort was needed to ensure the timely on-site delivery of the equipment in order to meet the project's expectations.



## CRUCIAL STAGES

As with all AJHL operations, safety was the primary concern from the outset. Each load-out operation had its own pre-defined risk assessment to identify potential hazards at every stage.

Furthermore, strategic coordination was required to monitor the equipment's departure from Singapore until its safe arrival at the project gate. This required very careful interface between AJHL Singapore, the client and third parties, to ensure the smooth, on-time delivery of all machinery. 



# DELIVERING EXCELLENCE AS STANDARD

*World-class expertise in providing heavy lifting for the gas industry makes AJHL a key player in Qatar's onshore projects*

**A**JHL is playing a significant role in helping Qatar meet its growing demand for domestic gas, as demonstrated by its crucial involvement in a major onshore facility.

The vast project incorporates a gas processing unit, sulphur recovery unit and an NGL recovery unit to produce methane, ethane, propane, butane and condensate. The client was awarded the EPC contract to build the gas processing facilities for the project, located in Ras Laffan Industrial City, 80km north of the Qatari capital, Doha. AJHL was tasked with the complex transportation and final installation of a massive 147 pieces of equipment, ranging from 100Te to 1,330Te.

## FACING CHALLENGES

Three major challenges were identified from the outset. Firstly, there was the delicate engineering task of installing two AGR (acid gas remover) absorbers, each weighing 1,330Te, in two trains in the minimum time. Secondly was AJHL's use of tailing frame technology for the super-heavy lift, with the induction of a 1,000Te tailing frame. Finally, there were stringent safety targets that had to be achieved whilst working alongside other contractors. With a total 27,000 people on the site, it was imperative to allow others to get on with their work and not block vital access points.

Work of this scale required a complex raft of equipment, including a Demag CC8800-1, twin kit, a Demag CC2800-1, a Demag CC2500-1, Demag AC-160, the Hitachi Sumitomo SCX2500, 1,000Te tailing frame, 124 axles of Scheuerle SPMTs (self-propelled modular transport), 48 axles of Cometto MSPMs, and a 36-axle conventional trailer.

## CRITICAL TIMING

The team was especially vigilant during critical times such as checking boom clearance for the installation, as well as proper utilisation of all available lifting tackle for both easier and faster operations. In particular, careful attention was paid to safety at height as well as under a load whilst tailing the 1,330Te absorber, for which special criteria was followed in accordance with AJHL's strict risk assessment procedures.

Such was AJHL's commitment to safety that the team completed their work with an outstanding zero incident or accident. What's more, the client held a ceremony to thank all the subcontractors for helping them achieve 100 million incident-free man hours on this project. This is all the more impressive given that AJHL fielded a crew of 73 including project management, engineering and safety management – and yet was responsible for lifting and transporting equipment with a combined total weight of more than 52,000Te.

AJHL's safety strategies, quality procedures, engineering capabilities and strong client relationship contributed to its landmark achievement on this complex project, and helped underline its reputation for delivering excellence as standard. As always, AJHL strives to go the extra mile to surpass expectations. 🇶🇦





# MAKING THE MOST OF MULTITASKING

*Coordinating complex lifts of varying weights and sizes is all in a day's work for AJHL's crew*

**W**hen a leading speciality chemical company developed a high-tech butyl rubber plant on Jurong Island in Singapore, AJHL was tasked with providing heavy lift services.

The 100,000 metric tonne-capacity plant is the most modern of its kind in Asia. When operating at full speed in 2015, it will produce premium halobutyl rubber, as well as regular butyl rubber. AJHL's remit involved the heavy lifting of vessels of varying weights and sizes, and installing them onto the foundation. The diversity of lift jobs involved cranes ranging from 120Te to 1,250Te capacity.

#### TECHNICAL KNOW-HOW

Meticulous planning was required for the mobilisation of the main crane, a Demag CC8800 (1,200Te capacity crawler) to the project site. This was achieved by careful liaison with the Singapore port authorities, traffic departments and local bodies, to obtain the necessary transport permits and permissions.

Liner ships were used to transport the Demag CC8800 to Singapore, and from the port to site the components were carried by low-bed trailers.

#### KEEPING TO SCHEDULE

Once at the project site, measured coordination was needed with the civil department to establish the optimum ground-bearing pressure for heavy lifting, as well as overcoming the uncertainties of day-to-day hurdles in order to adhere to the client's carefully planned schedule.

An in-depth technical study was required to fix the position of the Demag CC8800 to carry out the heavy lifting operations at site. Our engineering team planned this so that all heavy lifts could be achieved from one single crane position. In addition, a Demag CC2400 (400Te crawler crane) was used, as well as a Hitachi SCX2800, a Demag AC-500 and a Demag AC-120 for tailing operations and for carrying out the smaller lifts.

As with all time-critical jobs, planning and communication formed a critical element throughout the process. On this project, in-depth planning was carried out across all disciplines, which resulted in AJHL proposing that the dressing up of vessels be performed in the initial horizontal stage, which in turn translated into significant time and cost savings to the client. 



# LEADING LOAD OUT OPERATIONS OVERSEAS

*Early communication, planning and coordination were key to AJHL's successful client collaboration*

**W**hen the client, a leading engineering and construction firm, decided to load out more than 60 pre-assembled structures at the Batam Island fabrication facility in Indonesia, it engaged AJHL's expert help. Up against many global competitors, AJHL was delighted to secure the project, their first collaboration in the region.

#### EARLY INPUT

Initially, AJHL designed and proposed a special synchronised jacking system which met the clients' requirements. As the pre-assembled racks and units had a combined weight of approximately 25,000 tonnes, equipment was selected based upon various constraints including weight, size, the module support points and site conditions. The synchronised jacking system included eight 125Te climbing jacks, 1,600 pieces of jacking timber, 136 axle lines of SPMT, eight PPUs and four 12m ramps.

Once the client approved the equipment, AJHL carried out a complex jacking operation followed by internal shifting of the pan cake modules during the fabrication stages of the contract. AJHL was then responsible for loading out the stream of pipe racks to

*"The synchronised jacking system included eight 125Te climbing jacks, 136 axle lines of SPMT and four 12m ramps"*

the ships in a roll-on operation during delivery stage.

As the client's customers are predominantly government utilities, power generators and oil companies, the team diagnosed and analysed potential risks and hazards in the field.

#### WINNING COMBINATION

The project finished on schedule when the pre-assembled structures were installed at the liquefied natural gas plant on Barrow Island, Australia. This project therefore had to adhere to Australia's strict standards. After successfully joining forces, this AJHL load-out project was a winning combination of planning, communication and coordination. AJHL's close ties with the client will undoubtedly lead to future collaborations. 



# BREAKING WORLD RECORDS AT RUWAIIS

*AJHL flexes its muscle to transport and safely install the world's largest crude column to date*

**A**JHL continues its project success safely with the completion of a milestone project at one of the UAE's largest oil refining facilities in Abu Dhabi. The expansion project includes the construction of a crude distillation unit, for which AJHL was tasked with handling 145,000 FRT (freight tonnes) of project equipment (including the world's largest crude column to date).

The client, an internationally-recognised EPC contractor, needed the project equipment to be received at Abu Dhabi Port and then taken (by land or by a combination of marine and land transportation), to the site in Ruwais, 200km away. AJHL then had to lift the equipment onto the foundations.

#### SETTING A NEW STANDARD

The heaviest column for the plant weighed in at 1,261Te and measured 94m long, with a 12.5m diameter. At the time of operations this was the largest crude column to be handled anywhere in the world.

AJHL proposed to use a marine spread of a 350-foot class barge and a 50Te bollard pull tug boat, along with 76 axle lines of self-propelled modular trailers for the load-out and load-in operations. In addition, a 3,200Te capacity Demag CC 8800-1 with twin crawler attachment was deployed to install the crude column onto the foundation.

From the start, this was a highly challenging project from safety, technical and commercial perspectives.

*“Successful lifting of the equipment called for a fleet of 17 cranes ranging from 100Te up to 3,200Te capacities”*

One of the biggest hurdles to overcome was the handling of 145,000FRT of heavy-lift equipment at Abu Dhabi Port within a time span of just eight months.

Furthermore, the safe transportation of the vast amount of equipment to site required careful coordination with local authorities. Upon delivery to site, the successful lifting of the equipment onto the foundation called for a fleet of 17 cranes ranging from 100Te up to 3,200Te capacities.

Finally, each piece of equipment to be transported and erected varied in terms of geometry and weight, which demanded careful assessment before finalising the transportation and lifting processes.

#### STRATEGIC PLANNING

AJHL's engineering team was involved with the client's engineers and technical personnel from the pre-bidding stage, to devise an optimal solution for the overall project. Technical clarification meetings were held with the client's engineers to evaluate equipment requirements and to initiate plans to meet the project's schedule. Early involvement helped to ensure all relevant aspects were considered in the planning stages, before any equipment or personnel were brought to site.

Planning sessions were also held to strategise transportation and installation methods, discuss risks and measures taken to mitigate those risks.

#### ATTENTION TO DETAIL

One of AJHL's key strengths is having all the skills and expertise to develop comprehensive engineering packages comprising method statements, risk assessments and rigging studies. These then form the blueprints for operations, and contain all the relevant information to ensure work is conducted to the highest possible safety and quality standards, to ensure client satisfaction each and every time.

In addition to having access to the considerable resources of the wider Al Jaber Group of companies, AJHL prides itself upon its ability to focus on the smallest details in each operation.

This landmark refinery expansion project is yet another example of how AJHL's meticulous planning lays the foundations for outstanding results, whether overseas or at home in the UAE. 

# SMOOTH SAILING ON THE BOSPHORUS

*Intricate lifting assignment in Turkey proves AJHL's strength in multi-task project management*

The bridge over the Bosphorus Strait in Istanbul has long been a strategic geographical crossroads where east meets west, and where Europe ends and Asia begins.

With a 65m vertical clearance, however, the bridge can also prove a significant obstacle to maritime traffic – in particular large drilling vessels – which must traverse the Strait on their journeys to and from Europe, Central Asia and the Middle East. With vast amounts of crude oil and natural gas reserves in the surrounding regions, today the Bosphorus Strait represents a crucial energy corridor which must be navigated – bridge or no bridge.

And so it was that the client engaged the services of AJHL for a high-precision task: to remove the derrick structure of a sizeable drilling ship, transport the derrick sections underneath the bridge and along the Bosphorus Strait before reinstalling them onto the ship, so as to enable its safe passage under the bridge. Once the vessel arrived at Samsun Port on the Black Sea, the derrick was scheduled to be removed in seven technical lifts. The derrick would then be loaded onto a barge (contracted by AJHL) and taken to Bandirma Port on the Sea of Marmara, where it would be reinstated.

This was in fact the drilling ship's return journey – the client was so impressed with AJHL's performance on the outward journey one year earlier, that AJHL was the natural choice for this return leg.

AJHL's scope of work encompassed everything from the arrival of the vessel until the reinstatement of the derrick structure, including contracting and supervising the ports, organising the barge and sea fastening as well as performing the lifts. In Samsun Port, a 17-strong workforce from AJHL was on site using a Demag CC8800-1 to remove the derrick structure, while in Bandirma Port a 16-member team used a CC8800-1 Twin for the reinstatement. Both teams were operationally self-sufficient.

## SIMPLIFYING OPERATIONS

Communication, accountability and complete visibility were essential. Despite the intricacy of the task, AJHL notched up outstanding achievements: not only were operations completed ahead of schedule, they were also completed under budget and without lost time incident. The project underlines AJHL's capability – not only in lifting and land transportation jobs – but in the most complex, multi-task project management situations. 

# EXPANDING ITS GLOBAL REACH

*Major project in KSA for international engineering giant is a resounding success*



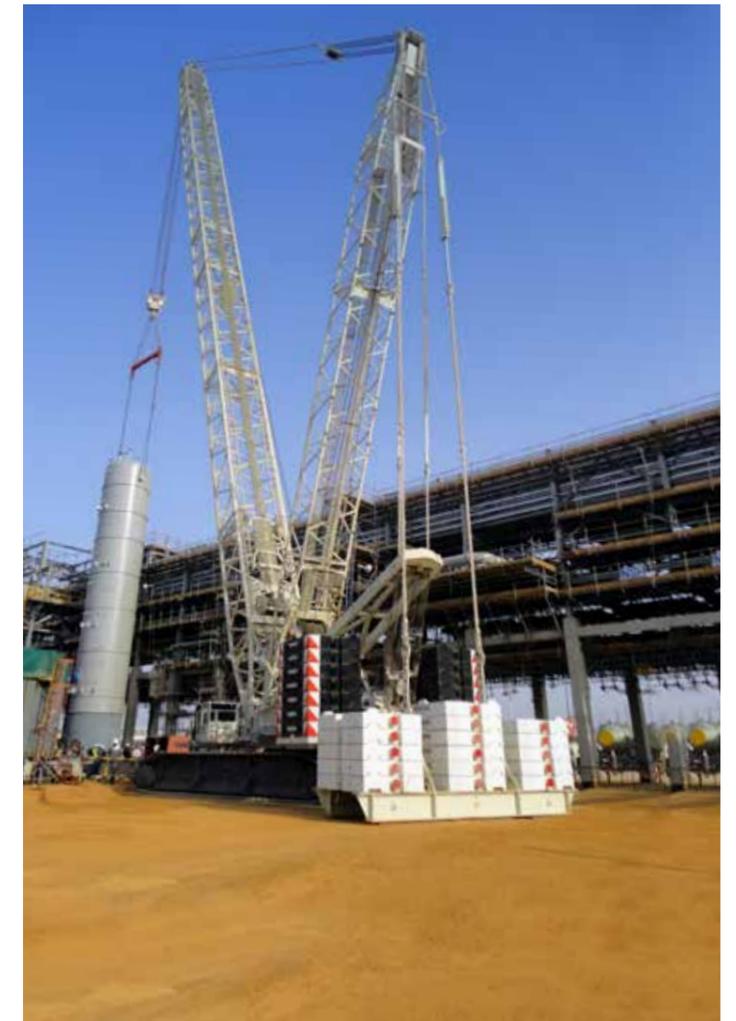
AJHL recently undertook a complex heavy lift package for a prestigious acrylic acid project in Jubail Industrial City, KSA, for its client and the client's consortium partner.

The scope of work included lifting around 26 pieces of equipment, with weights ranging from 75Te to 770Te. For this, the highly experienced AJHL project team deployed a Demag CC8800 (1,250Te crawler crane), a Demag CC2400 (400Te crawler crane), Hitachi SCX 2500 (250Te crawler crane) and a Demag AC160 (160Te telescopic crane).

While the Hitachi SCX2500 and Demag AC160 were used for tailing and rigging assistance operations, the remaining equipment was used as the project's main cranes.

One of the main challenges was lifting and positioning structures at an extensive radius; the heaviest piece, a 92Te truss was lifted at a 102m radius and at a 38m elevation. This meant the configuration of the deployed crane had to lift at approximately 90 per cent capacity.

The AJHL team broke down the multifaceted project into smaller tasks to help ease the overall risk assessment of each section, and hence apply AJHL's rigorous safety standards along with site safety regulations. Moreover, sharing safety concerns and driving them from bottom level to top management helped to increase the project team's ability to assess any potential weaknesses, which were then quickly dealt with.



## EXEMPLARY SAFETY RECORD

By fully understanding the customer requirements and doing an in-depth analysis of the project's constraints, AJHL initiated, planned, executed, monitored and controlled each and every phase of the venture. This was reflected in the client's high levels of customer satisfaction, to the extent that they expressly recognised AJHL as contributing to its impressive achievement of 10 million man hours with no LTI.

This operation demonstrates AJHL's commitment to providing safe, quality heavy lifting and transportation services, right across the globe. 



# JOINT **TEAM** EFFORT

*A highly engineered fabrication assignment in Singapore proves AJHL's ability in multi-task project management*

**W**hen Asia Offshore (a subsidiary of AJHL) was asked to supply an integrated boiler module for an FPSO (floating production storage and offloading) for deployment in the North Sea in Europe, it engaged parent company AJHL to assist with the heavy lifting duties. The client awarded Asia Offshore the procurement and construction contract to supply the boiler module to the FPSO, on behalf of a UK-based petroleum production and exploration company.

Furthermore, there were 280 handrails, 24 staircases, platforms on each level, piping steel work, electrical and instrumentation, insulation and heat tracing to accommodate the installation and functioning of two 142T/h boilers, two economisers and more than 200 instruments.

Asia Offshore divided the entire module into two, so that both halves could be fabricated simultaneously. It engaged AJHL to use three heavy duty cranes to lift one module, and then erect it on top of the other.

A 50Te crawler crane was deployed, along with a 90Te mobile crane with a jib for general works. Since the module weighed approximately 720Te, AJHL loaded out the module onto a barge using three 52-axle SPMTs.

Despite being the heaviest and largest module handled by Asia Offshore so far, work was finished on budget and on time within the seven-month job duration. 

## **RIISING TO THE CHALLENGE**

Asia Offshore was the region's first company to build a module of this kind for the North Sea. At 24m long, 17m wide and 24m tall, the module comprised four levels of structural steel including gas uptake ducts, intake air ducts and exhaust stacks.

## AN **UNCONVENTIONAL LOAD OUT**

*Crossing the world's busiest shipping lanes was not the only obstacle AJHL Singapore overcame on the Jurong Port Project*

**A**JHL Singapore was contracted to construct a cement offloading facility for the Jurong Port Authority. It was assigned the daunting task of shipping and shifting bulk cement and offloading two discharge ships from Batam to Singapore for eventual installation at Jurong Port.

### **WEIGHTY ISSUES**

Lashing was identified as the most critical challenge. The individual weight of the ship unloaders were approximately 550Te. To ensure the equipment did not move on the barge deck, the team designed sea fastening using StraddPro software. The result was eight 150mm tubular lashings each with a capacity of 55Te and an additional 20 15Te wire-rope lashings for extra safety to counteract the anticipated pitch and roll of the barge.

Unlike conventional load outs achieved over the stern or bow, AJHL Singapore had to discharge both ship loaders over the side. Fourteen pumps were employed to maintain a correct heel and trim on the barge and the compensation of pumping was

based on 700mm of trailer travel at a time. With all pumps working throughout the discharge, the process took just two hours and 45 minutes, faster than the predicted three hours and an unprecedented achievement for AJHL Singapore.

Addressing the monsoons that played havoc with sea fastening, welding procedures and time schedule was also key. Meeting the budget was imperative, too, so the team mobilised 40 axles of SPMT to Batam, enabling them to undertake the load-in phase more efficiently. For the off-loading phase, AJHL Singapore used axles that were already based in the city state.

Multitasking was essential, with riggers being used to assist in ballasting the barge, and the safety officer testing the gas and issuing the Permit to Work documents. A high level of trust already existed between both parties, as AJHL Singapore had completed a lifting programme for the client earlier on the project. This was a triumphant blend of professionalism and cooperation between the AJHL engineers, the site team and everyone on board. 





# IN SAFE HANDS

*Maintaining the highest safety standards on hazardous projects is at the heart of AJHL's global success story*

**B**attling intense heat and humidity, working to tight deadlines and operating in hazardous, fire-prone conditions are all in a day's work for AJHL's highly skilled workforce.

The company's wealth of expertise was called upon in the summer to assist in operations at a refinery project in Yanbu, Kingdom of Saudi Arabia.

Processing more than 360,000bpd of Arabian light crude, the facility began operations in 1982. Today it is the world's largest single-train crude oil refinery producing LPG, gasoline, jet fuel, base oil as well as fuel oil. AJHL's involvement in the project was split

into two phases: transportation and heavy lifting. Together, these two elements formed an integral part of the facility's turnaround, a scheduled shutdown (which takes place approximately every two or three years) to enable routine maintenance and repairs to be conducted.

#### COMPLEX TASK

The first phase comprised the transportation of a regenerator (420Te), reactor (600Te), spider beam and two overhead lines from Yanbu Industrial Port to the project lay down area, over approximately 6km.

The main challenges AJHL had to contend with and overcome included working during the intense heat and humidity of summer, delays by third parties in shipment arrival and port clearance, as well as careful coordinating between the Royal Commission, Port Authorities and the facility's operators.

The second phase involved the heavy lifting during the shutdown. During this time, AJHL was called upon to transport various pieces of equipment from the lay down area to the FCC (fuel catalytic cracker) unit.

The most critical job however was the removal and installation of the regenerator and the reactor. Here, AJHL's heaviest lifts were the regenerator head and cyclones (400Te net weight) and the reactor shell (561Te net weight).

#### OVERCOMING CHALLENGES

The principal challenges of the project were meeting a very tight work schedule and operating in a confined area, not to mention maintaining the highest level of safety at all times.

Safety was of the utmost importance on this project, especially since the site was a hazardous one with risk of gas (H<sub>2</sub>S), fire, falling objects, tripping hazards and noise. Minimising risk was a prominent feature of every toolbox and pre-task talk, and was broken down into



two categories: general site safety and task-specific. What's more, all staff – not just the safety officers – played a part in ensuring that everyone operated with good safety practices foremost in their minds.

Despite facing numerous challenges, AJHL notched up a number of outstanding achievements on this project. In addition to zero LTI and always being ready ahead of schedule, AJHL was awarded a Silver Safety Helmet for its excellent safety practices throughout its time spent working on the project, and for the team's overall contribution to a safe working environment.

Once again, AJHL demonstrates it has the professionalism, teamwork and wealth of experience to successfully complete the world's most demanding transportation and heavy lift operations. 



AJHL was awarded a Silver Safety Helmet for good safety practices on the project



# ON TRACK FOR SUCCESS

*AJHL takes the strain on one of the Middle East's most prestigious projects of the moment: the UAE's national railway network*

**W**ork on the UAE's iconic 1,200km-long railtrack is well underway. The first stage is a 270km-long freight line linking Ruwais to the Shah gas field. Laying metre after metre of high-precision track is just one vital element of this enormous project; another is actually installing the trains onto the tracks.

A task of this scale requires not only heavy lift capability, but exceptional attention to detail.

The client awarded AJHL the hefty task of transporting and lifting eight, fully built-up locomotives. Weighing 185Te each and measuring 22.88m by 3.23m by 5.21m, the locomotives needed to be transported from the Musaffah Government jetty to Mirfa, before finally being installed on to the rails.

AJHL's job was to receive the locomotives on to a conventional modular trailer, jack down on stools for customs clearance at Musaffah port, then transport them to Mirfa site, again using a conventional modular trailer.

Once at Mirfa, AJHL would use 450Te/500Te crawler cranes to lift the locomotives onto the rails.

The eight locomotives were delivered in three shipments: the first containing a single locomotive, the second two locomotives, while the remaining locomotives arrived in the third shipment.

The entire project required rigorous planning with detailed engineering and rigging design strategies. The pre-engineering phase included the preparation of work packs containing the project execution plan, rigging and transport studies, method statement and risk analysis, as well as the necessary certifications of equipment and personnel involved.

A team of approximately 15 employees were mobilised at the Mirfa site, including a project manager, engineer, transport supervisor, lifting superintendent, operators, drivers and assist crew.

Effective communication was achieved via a mass toolbox talk conducted every day, in addition to pre-task talks, carried out before every operation. As with all time-sensitive jobs, planning and communication was critical. To keep the client updated, careful coordination and cooperation was established from the outset and helped make this project a resounding success.

Getting the show on the road: A task of this scale requires not only heavy lift capacity, but exceptional attention to detail



## LIFTING DUTIES

When it came to lifting duties, AJHL utilised a Demag CC2500-1 (500Te capacity crawler crane) to carry out operations at site for the first shipment of locomotives, while a Demag CC2500 (450Te capacity crawler) was used for the remaining shipment of locomotives.

For transporting the locomotives, AJHL utilised Cometto conventional modular trailers in 15 axles side-by-side configuration. Drawings from the client detailing the locomotives' weight, dimensions, centre of gravity and saddles location were vital for our engineers to develop their own transportation studies and drawings – in addition to keeping within strict limitations as set out by government bodies.

Additional key information such as the locomotives' lifting points, as well as site conditions and the required radius in order to establish suitable crane and other lifting accessories also proved vital to the safe completion of the project.

## IN SAFE HANDS

Achieving AJHL's primary target of the safe, on-time delivery of the locomotives meant undertaking a thorough risk assessment. This identified to the client any significant risk activities, highlighted the measures in place to control the risk, and justified whether the existing control measures were adequate (and if not, provided a detailed plan of action on how the risk could be controlled).

AJHL's involvement in this stage is an excellent example of how early involvement, teamwork, a meticulous approach to safety and operations, along with an in-depth understanding of the client's needs and operational requirements can make it possible to achieve the target successfully, safely and on time.

Understanding and supporting clients through professional contact and assistance throughout a project is a key AJHL characteristic. The coordinated teamwork made the logistical challenge of safely handling locomotives, a successful reality. With a reputation for the highest quality heavy lifting and heavy transportation projects, AJHL is proud to offer its industry expertise within the UAE to help shape the future of the country's national rail network. 





# TRAINING FOR THE TOP

*Safety is paramount, which is why AJHL invests in the latest technology to ensure its staff receives the most advanced training*

**B**ecoming an accomplished crane operator requires skill, dexterity and plenty of practice. That's why AJHL has invested in state-of-the-art simulators so trainees can learn the basic principles of operating a crane safely before handling the real thing.

Using heavy-equipment simulators, trainee operators benefit from immersive environments which help to develop essential skills, increase safety and reduce overall training costs. What's more, there is no danger to equipment or people when using the simulator.

#### HI-TECH TRAINING

Developed in conjunction with operators, trainers and simulation experts, the simulators deliver an integral training solution to help prepare heavy equipment operators for the challenges ahead.

Instructors can load multiple worksite aspects on the simulators, and train novices through to advanced students in a wide range of work conditions and tests.

In addition to gaining a basic knowledge of the system, trainees learn about different settings, how to check safety systems and how to troubleshoot electronic defaults.



All simulators provide stunning realism through life-like 3D visuals, authentic machine sounds, high-fidelity equipment dynamics and environmental effects, and real machine controls such as joystick control lever and load moment indicators.

#### SIMULATOR SUCCESS

As heavy lift cranes are complex machines, dangerous to operate, expensive to run and not always available for training purposes, the simulators offer clear advantages, justifying AJHL's investment in the sophisticated training equipment. 

## ON DUTY

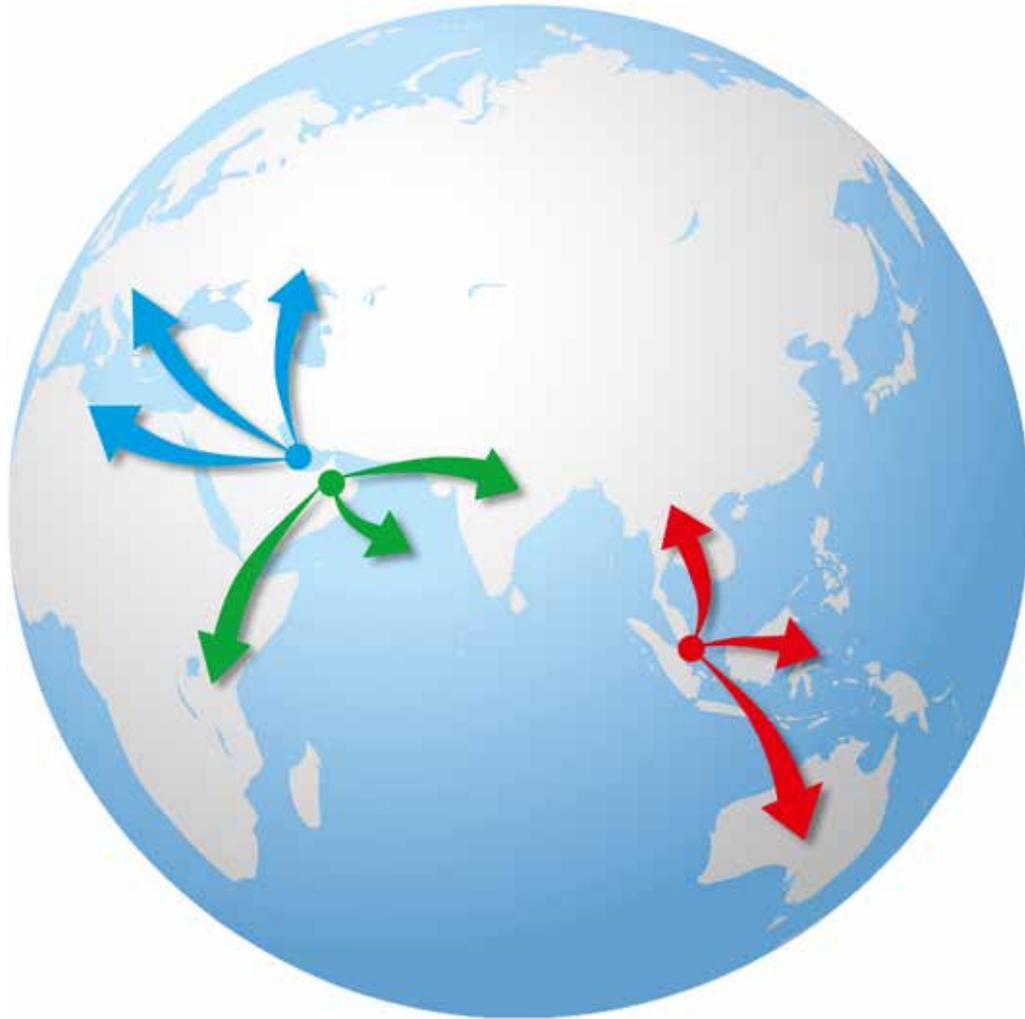
*With a career spanning over 30 years at AJHL, Heavy Lift Superintendent Mohammad Anwar is a key team member*

**M**ohammad Anwar is a man who knows what it takes to get a job done. Originally from Pakistan, he joined AJHL more than three decades ago and is an integral part of its successful growth history.

From small beginnings, Anwar has worked his way up the career ladder, proving he is trustworthy and reliable. With a working knowledge of spoken Arabic, English, Farsi and Urdu, Anwar has undertaken numerous complex heavy lift projects for AJHL worldwide, from across the GCC to Pakistan and Malaysia. In addition to being a key team player, motivator and leader, Anwar is highly regarded by clients thanks to his safe and successful project delivery record.

Anwar's long service within AJHL means he is well acquainted with the company project documentation and procedures. He is a fine example of how the company's complex lifting operations are undertaken by the most experienced people, whose technical expertise and commitment guarantees the quality of AJHL's service. 





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